What is claimed:

1. A method for screening DNA encoding proteins having the activity of improving environmental stress tolerance wherein candidate cDNA derived from cDNA library is introduced into host cells, the obtained transformed cells are cultured under the conditions where the host cells cannot substantially grow, the clones grown after culturing are selected, and the candidate cDNA introduced from the selected clones is isolated.

2. A method for screening DNA encoding proteins having the activity of improving environmental stress tolerance wherein candidate cDNA derived from cDNA library is introduced into host cells, the obtained transformed cells are cultured under conditions where the host cells cannot substantially grow, the clones grown after the culturing are selected, the candidate cDNA introduced from the selected clones is isolated, the isolated candidate cDNA is introduced into the isolated cDNA, the mutant cDNA is introduced into host cells, and the process of selecting is repeated one or more under stringent conditions of selecting mutant cDNA than the selecting condition.

3. The method for screening according to any one of claims 1 or 2, wherein the environmental stress is one or more of chemical substance stress, high temperature stress, low temperature stress, freezing stress, drought stress, ozone stress, ultraviolet stress, radiation stress, or osmotic pressure stress.

4. The method for screening according to claim 3, wherein the chemical substance stress is salt stress.

5. The method for screening according to any one of claims 1 to 4, wherein the host cell is a coliform.

6. The method for screening according to claim 5, wherein the coliform is SOLR strain.

7. The method for screening according to any one of claims 1 to 6, wherein an environmental condition where host cells cannot substantially grow is 350mM or more of salt concentration.

8. DNA encoding proteins having the activity of improving environmental stress

tolerance wherein the DNA is obtained according to any one of claims 1 to 7.

9. DNA encoding proteins having the activity of improving environmental stress tolerance according to claim 8, wherein the environmental stress is one or more of stresses selected from chemical substance stress, high-temperature stress, low-temperature stress, freezing stress, drought stress, ozone stress, ultraviolet stress, radiation stress, or osmotic pressure stress.

10. DNA encoding proteins having the activity of improving the environmental stress tolerance according to claim 9, wherein the chemical substance stress is salt stress.

11. DNA encoding proteins having the activity of improving the environmental stress tolerance according to any one of claims 8 to 10, wherein the proteins having the activity of improving the environmental stress tolerance are derived from plants.

12. DNA encoding proteins having the activity of improving the environmental stress tolerance according to claim 11, wherein the plant is Bruguiera sexangla, Avicennia marina, Sueada japonica, Salsola komarovii, or Mesembryanthemum crystallinum.

13. DNA encoding proteins according to any one of the following (a) to (c):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 2,

(b) a protein comprising a sequence of amino acids having 70% or more of homology with the sequence of amino acids shown in Seq. ID No. 2, and having the activity of tolerance at least against salt stress,

(c) a protein having a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 2, and having the activity of improving tolerance at least against salt stress.

14. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 1, or its complementary sequence.

15. DNA hybridized with the DNA according to claim 14 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

16. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 4,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 4, and having the activity of improving tolerance at least against salt stress.

17. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 3 or its complementary sequence.

18. DNA hybridized with the DNA according to claim 17 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

19. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 6,

(b) a protein comprising the sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 6, and having the activity of improving tolerance at least against salt stress.

20. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 5 or its complementary sequence.

21. DNA hybridized with the DNA according to claim 20 under stringent conditions, and encoding proteins comprising the activity of improving tolerance at least against salt stress.

22. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 8,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 8, and having the activity of improving tolerance at least against salt stress.

23. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 7 or its complementary sequence.

24. DNA hybridized with the DNA according to Claim 23 under stringent conditions, and encoding proteins having the activity of improving tolerance at least

against salt stress.

25. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising a sequence of amino acids shown in Seq. ID No. 10,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 10, and having the activity of improving tolerance at least against salt stress.

26. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 9 or its complementary sequence.

27. DNA hybridized with the DNA according to claim 26 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

28. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein having the sequence of amino acids shown in Seq. ID No. 12,

(b) a protein having a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 12, and having the activity of improving tolerance at least against salt stress.

29. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 11 or its complementary sequence.

30. DNA hybridized with the DNA according to claim 29 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

31. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein having the sequence of amino acids shown in Seq. ID No. 14,

(b) a protein having a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 14, and having the activity of improving tolerance at least against salt stress.

32. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 13 or its complementary sequence.

33. DNA hybridized with the DNA according to claim 32 under stringent

conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

34. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 16,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 16, and having the activity of improving tolerance at least against salt stress.

35. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 15 or its complementary sequence.

36. DNA hybridized with the DNA according to claim 35 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

37. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 18,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 18, and having the activity of improving tolerance at least against salt stress.

38. DNA having part or whole of the sequence of bases shown in Seq. ID No. 17 or its complementary sequence.

39. DNA hybridized with the DNA according to Claim 38 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

40. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 20,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 20, and having the activity of improving tolerance at least against salt stress.

41. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 19 or its complementary sequence.

42. DNA hybridized with the DNA according to claim 41 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

43. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 22,

(b) a proteins comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 22, and having the activity of improving tolerance at least against salt stress.

44. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 21 or its complementary sequence.

45. DNA hybridized with the DNA under stringent conditions according to claim 44, and encoding proteins having the activity of improving tolerance at least against salt stress.

46. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 24,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 24, and having activity of improving tolerance at least against salt stress.

47. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 23 or its complementary sequence.

48. DNA hybridized with the DNA according to Claim 47 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

49. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 26,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 26, and having the activity of improving tolerance at least against salt stress.

50. DNA comprising part or whole of the sequence of bases shown in Seq. ID No.

25 or its complementary sequence.

51. DNA hybridized with the DNA according to Claim 50 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

52. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 28,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 28, and having the activity of improving tolerance at least against salt stress.

53. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 27 or its complementary sequence.

54. DNA hybridized with the DNA according to claim 53 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

55. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 30,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in. ID No. 30, and having the activity of improving tolerance at least against salt stress.

56. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 29 or its complementary sequence.

57. DNA hybridized with the DNA according to Claim 56 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

58. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 32,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 32, and having the activity of improving tolerance at least against salt stress.

59. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 31 or its complementary sequence.

60. DNA hybridized with the DNA according to claim 59 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

61. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 34,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 34, and having the activity of improving tolerance at least against salt stress.

62. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 33 or its complementary sequence.

63. DNA hybridized with the DNA according to Claim 62 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

64. DNA encoding proteins according to any one of the following (a) or (b):

(a) a protein comprising the sequence of amino acids shown in Seq. ID No. 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, or 64,

(b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, or 64, and having the activity of improving tolerance at least against salt stress.

65. DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, or 63, or its complementary sequence.

66. DNA hybridized with the DNA according to claim 65 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress.

67. A method for improving environmental stress tolerance, wherein the DNA

according to any one of claims 8 to 66 is used.

68. The method for improving the environmental stress tolerance according to claim 67, wherein the environmental stress is one or more of chemical substance stress, high temperature stress, low temperature stress, freezing stress, drought stress, ozone stress, ultraviolet stress, radiation stress, and/or osmotic pressure stress.

69. The method for improving environmental stress tolerance according to claim 68, wherein the chemical substance stress is salt stress.

70. A protein comprising of the sequence of amino acids shown in Seq. ID No. 2.

71. A protein having 70% or more of homology with the sequence of amino acids shown in Seq. ID No. 2, and having the activity of improving tolerance at least against salt stress.

72. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 2, and having the activity of improving tolerance at least against salt stress.

73. A protein comprising the sequence of amino acids shown in Seq. ID No. 4.

74. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 4, and having the activity of improving tolerance at least against salt stress.

75. A protein comprising the sequence of amino acids shown in Seq. ID No. 6.

76. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 6, and having the activity of improving tolerance at least against salt stress.

77. A protein comprising the sequence of amino acids shown in Seq. ID No. 8.

78. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 8, and having the activity of improving tolerance at least against salt stress.

79. A protein comprising the sequence of amino acids shown in Seq. ID No. 10.

80. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID

No. 10, and having the activity of improving tolerance at least against salt stress.

81. A protein comprising the sequence of amino acids shown in Seq. ID No. 12.

82. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 12, and having the activity of improving tolerance at least against salt stress.

83. A protein comprising the sequence of amino acids shown in Seq. ID No. 14.

84. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 14, and having the activity of improving tolerance at least against salt stress.

85. A protein comprising the sequence of amino acids shown in Seq. ID No. 16.

86. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 16, and having the activity of improving tolerance at least against salt stress.

87. A protein comprising the sequence of amino acids shown in Seq. ID No. 18.

88. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 18, and having the activity of improving tolerance at least against salt stress.

89. A protein comprising the sequence of amino acids shown in Seq. ID No. 20.

90. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 20, and having the activity of improving tolerance at least against salt stress.

91. A protein comprising the sequence of amino acids shown in Seq. ID No. 22.

92. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 22, and having the activity of improving tolerance at least against salt stress.

93. A protein comprising the sequence of amino acids shown in Seq. ID No. 24.

94. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 24, and having the activity of improving tolerance at least against salt stress.

95. A protein comprising the sequence of amino acids shown in Seq. ID No. 26.

96. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 26, and having the activity of improving tolerance at least against salt stress.

97. A protein comprising the sequence of amino acids shown in Seq. ID No. 28.

98. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 28, and having the activity of improving tolerance at least against salt stress.

99. A protein comprising the sequence of amino acids shown in Seq. ID No. 30.

100. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 30, and having the activity of improving tolerance at least against salt stress.

101. A protein comprising the sequence of amino acids shown in Seq. ID No. 32.

102. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 32, and having the activity of improving tolerance at least against salt stress.

103. A protein comprising the sequence of amino acids shown in Seq. ID No. 34.

104. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 34, and having the activity of improving tolerance at least against salt stress.

105. A protein comprising the sequence of amino acids shown in Seq. ID No. 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, or 64.

106. A protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, or 64, and having the activity of improving tolerance at least against salt stress.

107. An antibody specifically bound to the protein according to any one of claims 70 to 72.

108. An antibody specifically bound to the protein according to any one of claims

73 to 104.

109. An antibody specifically bound to the protein according to any one of claims 105 or 106.

110. The antibody according to any one of claims 107 to 109, wherein the antibody is a monoclonal antibody.

111. A vector comprising the DNA encoding proteins having the activity of improving tolerance against environmental stresses according to any one of claims 8 to 12.

112. A vector comprising the DNA according to any one of claims 13 to 15.

113. A vector comprising the DNA according to any one of claims 16 to 63.

114. A vector comprising the DNA according to any one of claims 64 to 66.

115. A transformed cell obtained by introducing the vector according to any one of claims 111 to 114.

116. A transformed cell according to claim 115, wherein the host cell is a plant cell.

117. A method for producing proteins having the activity of improving environmental stress tolerance, wherein the transformed cells according to either of claims 115 or 116 is cultured, and recombinant proteins are collected from the transformed cells or the supernatant of the cultured liquid.

118. A transgenic plant obtained by introducing the DNA according to any one of claims 8 to 12 encoding proteins having the activity of improving environmental stress tolerance, and by dividing, proliferating and redifferentiating the plant cell.

119. A transgenic plant obtained by introducing the DNA according to any one of claims 13 to 15 encoding proteins having the activity of improving environmental stress tolerance, and by dividing, proliferating and redifferentiating the plant cell.

120. A transgenic plant obtained by introducing the DNA according to any one of claims 16 to 63 encoding proteins having the activity of improving environmental stress tolerance, and by dividing, proliferating and redifferentiating the plant cell.

121. A transgenic plant obtained by introducing the DNA according to any one of claims 64 to 66 encoding proteins having the activity of improving environmental stress

tolerance, and by dividing, proliferating and redifferentiating the plant cell.

122. A transgenic plant obtained by introducing the vector according to any one of claims 111 to 114, and by dividing, proliferating and redifferentiating the plant cell.

123. The transgenic plant according to any one of claims 118 to 122, wherein the environmental stress is one or more of chemical substance stress, high temperature stress, low temperature stress, frenzying stress, drought stress, ozone stress, ultraviolet stress, radiation stress, and/or osmotic pressure stress.

124. The transgenic plant according to claim 123, wherein the chemical substance stress is salt stress.

125. A material for breeding derived from the transgenic plant according to any one of claims 118 to 122.